What is claimed is:

1. In a method for controlling a processing apparatus comprising the steps of: obtaining an error value between an input value of the processing apparatus for processing an subject to be processed and a measurement value obtained by measuring the subject processed in the processing apparatus, computing a correction value for correcting the input value of the processing apparatus in the direction of decreasing the error value, and managing the values as processing data to be utilized in computing a next correction value,

said method further comprising the steps of:

searching previous processing data having a history identical to that of the subject loaded into the processing apparatus;

predicting a current bias correction value from a plurality of most recent previous correction values out of the searched previous processing data having the identical history;

predicting a current random correction value by means of a neural network on a basis of a plurality of most recent previous random correction values out of the previous processing data;

summing the predicted current bias correction value and the predicted current random correction value as a current correction value of the processing apparatus; and

making the neural network learn for tracking a variation of the random correction value by using the error value.

2. A method for controlling a processing apparatus as claimed in claim 1, wherein said step of predicting the current bias correction value is performed by

means of a section linear weighted mean algorithm defined as the following equation:

$$x_{bias} = \frac{1}{W} \sum_{i=n-W+1}^{n} [\frac{W+n-i}{\sum_{j=1}^{W} i} x_{sh}(i)]$$

where a reference alphabet x_{bias} denotes the bias correction value, W denotes a number of sections, and x_{sh} denotes a previous bias correction value having the identical history.

3. A method for controlling a processing apparatus as claimed in claim 1, wherein the neural network is comprised of a multilayer perceptron, and the learning method employs an error feedback propagation system.

4. A method for controlling a processing apparatus as claimed in claim 1, wherein the processing apparatus is comprised of a manufacturing apparatus of a semiconductor device in the production system of variable kinds on a small scale.

5. In a method for controlling a photolithography apparatus comprising the steps of: obtaining an error value between an input value of the photolithography apparatus for processing a photoresist over a wafer and a measurement value obtained by measuring a photoresist pattern subjected to an exposure and a development in the processing apparatus by means of an overlay measurement instrument; computing a correction value for correcting the input value in a direction of decreasing the error value; and managing photolithographic processing data in the production time unit for utilizing the values in computing a next correction value,

said method further comprising the steps of:

searching previous processing data having a history identical to that of a new lot loaded into the photolithography apparatus;

predicting a bias component of a current correction value from a plurality of most recent previous correction values out of the searched previous processing data having the searched identical history;

predicting a random component of the current correction value by means of a neural network on a basis of a plurality of most recent previous random correction values out of the previous processing data;

summing the predicted bias component and random component as a current correction value of the photolithography apparatus; and

making the neural network learn for tracking the variation of the random component by using the error value.

6. A method for controlling a processing apparatus as claimed in claim 5, wherein said step of predicting the bias portion of the current correction value is performed by means of a section linear weighted mean algorithm defined as the following equation:

$$x_{bias} = \frac{1}{W} \sum_{i=n-W+1}^{n} \left[\frac{W+n-i}{\sum_{j=1}^{W} i} x_{sh}(i) \right]$$

where a reference alphabet x_{bias} denotes the bias component of the correction value, W denotes a number of sections and, x_{sh} denotes the previous bias component having the identical history.

7. A method for controlling a photolithography apparatus as claimed in claim 6, wherein the number of sections is 10.

8. A method for controlling a photolithography apparatus as claimed in claim 5, wherein, in said searching step, data having an identical reticle, PPID, BASE I and BASE II, that are history constituting elements, are detected as identical history processing data.

9. A method for controlling a photolithography apparatus as claimed in claim 8, wherein, if no processing data of identical history exists in said searching step, the bias portion of the correction value is guessed in accordance with a priority of remaining history constituting elements among processing data having the identical reticle.

10. A method for controlling a photolithography apparatus as claimed in claim 9, wherein said guessing method comprises the steps of:

extracting processing data having any one different history constituting element among the history constituting elements;

guessing the bias component of the correction value by using a relative value of any one history constituting element among the extracted processing data with the one different history constituting element; and

when the bias component cannot be computed by means of the relative value, guessing the bias component of the correction value by obtaining a mean value of the extracted processing data with the one different history constituting element.

11. A method for controlling a photolithography apparatus as claimed in claim 10, wherein the priority is provided in the order of history constituting elements

exerting the least influence, from BASE II, BASE II and then PPID.

12. A method for controlling a photolithography apparatus as claimed in claim 10, further comprising the step of requesting the proceeding of a sampling process when even the bias component cannot be guessed.

13. A method for controlling a photolithography apparatus as claimed in claim 5, wherein the neural network is comprised of a multilayer perceptron, and the learning method is an error feedback propagation method.

14. A method for controlling a photolithography apparatus as claimed in claim 13, wherein the multilayered perceptron comprises:

an input layer having three input nodes;

an output layer having one output node; and

a three-layered hidden layer between the input layer and output layer.

15. A method for controlling a photolithography apparatus as claimed in claim 14, wherein neurons of the hidden layer employ a sigmoid function as a transfer function.

16. A method for controlling a photolithography apparatus as claimed in claim 14, wherein neurons of the output layer employ a linear function as a transfer function.

17. In a method for controlling a photolithography apparatus comprising the

steps of: obtaining an error value between an input value of the photolithography apparatus for performing a photolithography upon a photoresist over a wafer and a measurement value obtained by measuring a photoresist pattern subjected to an exposure and a development in the photolithography apparatus via an overlay measurement instrument; computing a correction value for correcting the input value in a direction of decreasing the error value; and managing photolithographic processing data in the production time unit for utilizing the values in computing a next correction value,

said method further comprising the steps of:

searching previous processing data having history constituting elements (Reticle, PPID, BASE I and BASE II) identical to those of a new lot loaded into the photolithography apparatus;

predicting a bias component of a current correction value from a plurality of most recent previous correction values out of the searched previous processing data having the identical history constituting elements;

extracting processing data with one different constituting element except the Reticle among the history constituting elements when no previous processing data having the identical history constituting elements exists;

guessing the bias component of the correction value by means of a relative value of a certain history constituting element out of the processing data with a single different history constituting element extracted;

obtaining a mean value of the processing data with the extracted single different history constituting element to be guessed as the bias component of the correction value when the bias component cannot be computed by using the relative value;

predicting a random component of the current correction value by means of a neural network on a basis of a plurality of most recent previous random correction values out of the previous processing data;

summing the predicted bias component and predicted random component as a current correction value of the photolithography apparatus; and

making the neural network learn for tracking a variation of the random correction value by using the error value.

18. A method for controlling a photolithography apparatus as claimed in claim 17, wherein, in said guessing step, the priority is provided in the order of exerting the least influence from BASE II, BASE II and then PPID.